

Attorney's Docket No.: 07977-052001/US3053

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 21, 25, and 37-96 stand rejected under judicially created obviousness-type double patenting based on claims 1-48 of U.S. Patent No. 6,066,518. This contention is respectfully traversed, and it is respectfully suggested that the rejection is incorrect. Independent claims 49-56 of the present invention recite introducing an argon ion as a gettering material. In contrast, claims 1-48 of '518 recite 15 elements of a periodic table being used as the gettering material. While this does describe 15 elements, the argon ion is not included as one of those 15 elements.

Independent claims 21 and 25 recite "crystallizing a semiconductor film by heating wherein a crystallization promoting material segregates in a selected portion during the crystallization". Analogously, independent claims 37, 38, and 39 recite "crystallizing the semiconductor film with the selected region of the semiconductor film containing phosphorus to getter the crystallization promoting material during the crystallizing". Similarly again, independent claims 50, 52, 54, and 56 recite "heating the semiconductor film to crystallize the semiconductor film using the crystallization promoting material and to getter the crystallization promoting material into the

selected portion of the semiconductor film". Specifically, these independent claims each require that the crystallization and the gettering are conducted during one single heating step, that is, at the same time. On the other hand, claims 1-48 of the '518 patent have a first heating step that is used for the crystallization and another separate heating step used for the gettering. In view of the above, it is respectfully suggested that the rejected claims are distinguishable over claims 1-48 of '518.

The rejection also contends that it would have been obvious to one of ordinary skill in the art to determine through routine experimentation, the optimum operable means of placing the gettering material. This contention is respectfully traversed, however, and it is respectfully suggested once again that this is incorrect. Gettering produces significant advantages which are not possible in the prior art. A specific technique of gettering, as claimed, is certainly not taught or suggested by the cited prior art. The statement that this would have been obvious is specifically suggested to be groundless.

Claims 21, 25, and 37-96 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Nakajima in view of Yamada. This contention has been obviated by the amendment of the claims herein. In the present invention, the crystallization promoting material is provided for

crystallization and after that, it is gettered. That is, the material that is later gettered is intentionally introduced for the purpose of crystallization. In contrast, Yamada does not teach or suggest this feature. Yamada merely teaches removing crystal defects or impurities by gettering. Since Yamada merely teaches removing the impurities from a silicon film, it is respectfully suggested that Yamada teaches away from intentionally adding the crystallization promoting material. Because of this, it is also respectfully suggested that it is not appropriate and not obvious to use Yamada's techniques along with Nakajima's techniques.

In addition, it is respectfully suggested that this rejection does not meet the Patent Office's burden of providing a *prima facie* showing. The priority document Japanese Patent Application No. 7-216608 was already submitted as a verified English translation. In the previous Official Action dated February 15, 2000, the rejection contended that the translation did not teach the claimed material since the translation did not mention the silicon being at least a channel. However, it is respectfully suggested that the translation clearly does disclose the channel 114; see page 12 [0056] and FIG. 1D. Claims 21, 25, 37, 38, 40, 41, 43, 44, 46, and 47 have also been changed such that they no longer recite the channel. For these reasons, it is respectfully suggested that these claims are

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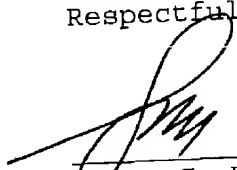
clearly supported by the verified English translation and, therefore, that the rejection is no longer correct.

Claims 55 and 56 have been amended to add a feature originally present in FIGS. 9A-9D, specifically, that not only region 906, but also a part of region 907, are etched to form an active layer. This feature is not taught or suggested by Yamada, and should hence be allowable thereover.

In view of the above amendments and remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully solicited.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 16/08/02

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VERSION TO SHOW CHANGES MADEIn the Claims:

The claims have been amended as follows.

55. A method for manufacturing a semiconductor device comprising:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a crystallization promoting material;

introducing an argon ion into a selected portion of said semiconductor film using a first mask covering a first portion of said semiconductor film provided over said semiconductor film;

heating said semiconductor film to getter said crystallization promoting material into said selected portion of said semiconductor film;

forming a second mask over said semiconductor film; and

etching a part of said first portion of said semiconductor film and said selected portion of said semiconductor film using said second mask after said heating to form an active layer of the semiconductor device.

56. A method for manufacturing a semiconductor device comprising:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a crystallization promoting material;

introducing an argon ion into a selected portion of said semiconductor film using a first mask covering a first portion of said semiconductor film provided over said semiconductor film;

heating said semiconductor film to crystallize said semiconductor film using said crystallization promoting material and to getter said crystallization promoting material into said selected portion of said semiconductor film;

forming a second mask over said semiconductor film; and

etching a part of said first portion of said semiconductor film and said selected portion of said semiconductor film using said second mask after said heating to form an active layer of the semiconductor device.